
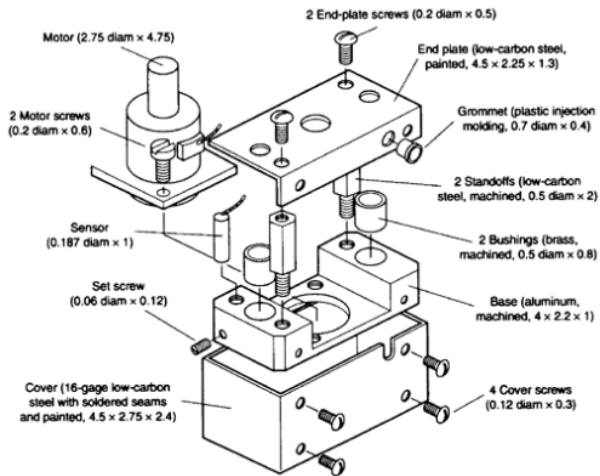


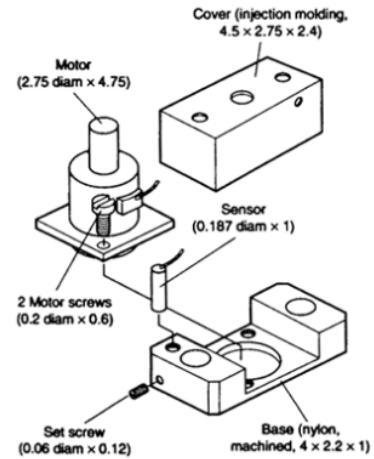
Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2024			
Course: Semester: VIII		Time : 03 hrs.	
Program: B.Tech. Mechanical		Max. Marks: 100	
Course Code: Design for Manufacturing & Assembly (MECH 4008P)			
Instructions: All the questions are compulsory and assume any missing data.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Describe the attributes of design for quality	4	CO1
Q 2	Enlist the mechanics of DFMA.	4	CO1
Q 3	Discuss the foundational principles of Design for Manufacturing and Assembly (DFMA).	4	CO1
Q 4	Examine the contributions of Computer-Aided Design (CAD) and Computer-Aided Engineering (CAE) in the context of Design for Manufacturing and Assembly (DFMA).	4	CO1
Q 5	Discuss the attributes of self aligning and self locating parts.	4	CO2
SECTION B (4Qx10M= 40 Marks)			
Q 6	Examine the foundational principles that form the basis of Design for Manufacturing and Assembly (DFMA).	10	CO2
Q 7	Explore the essential factors that contribute to designing a product for repairability, and illustrate these factors with specific examples.	10	CO2
Q 8	Examine the benefits and drawbacks of hot and cold working processes from the perspective of Design for Manufacturing and Assembly (DFMA).	10	CO3
Q 9	Explore the essential considerations involved in designing a product through the forging process, highlighting key factors for successful implementation.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q 10	Perform the comparative DFA analysis of the both the designs and answer the following questions: 1. How did the design team implement DFMA principles in the product design?	20	CO4

2. What specific changes were made to the product design to simplify manufacturing and assembly?
3. How did these changes impact the cost of manufacturing and assembly?

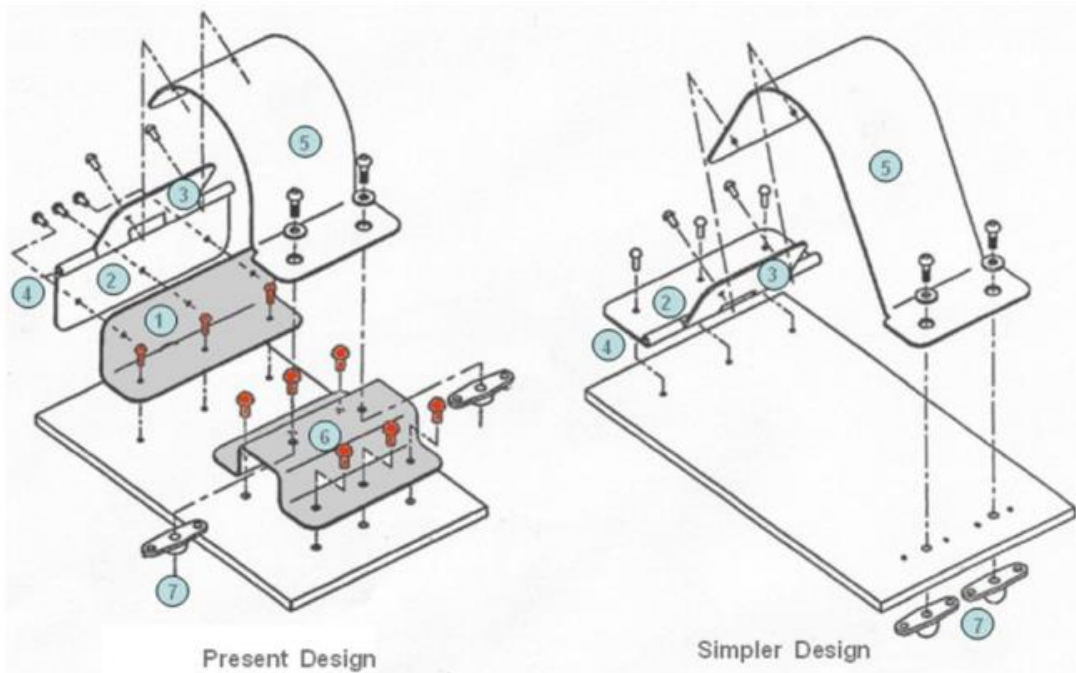
Initial design



Redesign



OR



Present Design

Simpler Design

Q 11

Analyze the function of QFD with reference to a EV and explain its various stages.

20

CO3